

-27-

CLAIMS

1. A method of forming a protective layer, comprising the steps of:

5 applying liquid material to an object from a sprayer mechanism (42) of a coating device; and

 drying said liquid material to form a peelable protective layer,

 wherein said sprayer mechanism (42) sprays said liquid
10 material such that said liquid material is distributed locally at a position close to an edge of said object, and distributed widely at a position away from said edge of said object.

15 2. A coating method according to claim 1, wherein said coating device is a robot (16a), said sprayer mechanism (42) is attached to an arm of said robot (16a), and said object is a vehicle body (14).

20 3. A coating method according to claim 1, wherein said sprayer mechanism (42) comprises a plurality of sprayer mechanisms, and said coating device comprises a plurality of coating devices corresponding to said sprayer mechanisms, said coating devices are robots (16a-16d), said
25 sprayer mechanisms are attached to corresponding arms (40) of said robots (16a-16d), and said object is a vehicle body (14).

-28-

4. A coating method according to claim 1, wherein
said sprayer mechanism (42) comprises a first sprayer (44a)
and a second sprayer (44b) which are placed in parallel on
an arm of said coating device, said method comprising the
5 step of moving said first sprayer (44a) close to said edge
and moving said second sprayer (44b) away from said edge,
and

when said liquid material is sprayed from said first
sprayer (44a) and said second sprayer (44b) towards said
10 object, said liquid material is distributed locally from
said first sprayer (44a), and said liquid material is
distributed widely from said second sprayer (44b).

5. A coating method according to claim 4, wherein
15 said sprayer mechanism (42) further comprises at least
one middle sprayer (44c, 44d, 44e) between said first
sprayer (44a) and said second sprayer (44b), and

said liquid material from said middle sprayer (44c,
44d, 44e) is distributed widely in comparison with said
20 liquid material from said first sprayer (44a), and
distributed locally in comparison with said liquid material
from said second sprayer (44b).

6. A coating method according to claim 5, wherein
25 intervals between adjacent ones of said first sprayer
(44a), middle sprayer (44c, 44d, 44e) and said second
sprayer (44b) are large at positions close to said second

-29-

sprayer (44b) and small at positions close to said first sprayer (44a).

7. A coating method according to claim 4, wherein
5 spray pressure of said liquid material from said first sprayer (44a) is smaller than that of said second sprayer (44b).

8. A coating method according to claim 5, wherein
10 spray pressure of said liquid material from said at least one middle sprayer (44c, 44d, 44e) is larger than that of said first sprayer (44a) and smaller than that of said second sprayer (44b).

15 9. A coating method according to claim 5, wherein said sprayer mechanism comprises multiple middle sprayers between said first sprayer (44a) and said second sprayer (44b), and
spray pressure of said liquid material from at least
20 one of said middle sprayers (44c, 44d, 44e) is larger than that of said first sprayer (44a) and smaller than that of said second sprayer (44b).

10. A coating method according to claim 1, wherein
25 said liquid material comprises acrylic copolymer as a main component.

-30-

11. A coating system comprising:

a coating device provided close to a transport line
(12) for an object to be coated,

5 a sprayer mechanism (42) provided on said coating
device,

a supply mechanism which supplies liquid material to
said sprayer mechanism (42) to form a peelable protective
layer on said object after drying said object, and
a controller (18) which controls said sprayer mechanism (42)
10 of said coating device such that said liquid material is
distributed locally at a position close to an edge of said
object, and distributed widely at a position away from said
edge of said object.

15 12. A coating system according to claim 11, wherein
said coating device is a robot and said sprayer
mechanism (42) is mounted on an arm of said robot (16a-16d),
and applies said liquid material to a vehicle body (14) as
said object.

20 13. A coating system as in claim 11, wherein
said sprayer mechanism comprises a plurality of sprayer
mechanisms (42), and said coating device comprises a
plurality of coating devices corresponding to said sprayer
25 mechanisms, said coating devices are robots (16a-16d), said
sprayer mechanisms are attached to corresponding arms of
said robots (16a-16d), and said object is a vehicle body

-31-

(14).

14. A coating system according to claim 11 wherein
said sprayer mechanism comprises a first sprayer (44a)
5 and a second sprayer (44b) which are positioned in parallel
on an arm (40), and

when said first sprayer (44a) is close to said edge,
while said second sprayer (44b) is away from said edge, said
controller (18) controls said sprayer mechanism (42) such
10 that said liquid material is distributed locally from said
first sprayer (44a), and said liquid material is distributed
widely from said second sprayer (44b).

15 15. A coating system according to claim 14, wherein
said sprayer mechanism (42) further comprises at least
one middle sprayer (44c, 44d, 44e) positioned between said
first sprayer (44a) and said second sprayer (44b), and
said controller (18) controls said sprayer mechanism
(42) such that said liquid material from said middle sprayer
20 (44c, 44d, 44e) is distributed widely in comparison with
said liquid material from said first sprayer (44a), and
distributed locally in comparison with said liquid material
from said second sprayer (44b).

25 16. A coating system according to claim 15, wherein
said sprayer mechanism (42) further comprises multiple
middle sprayers (44c, 44d, 44e), and

-32-

intervals between adjacent ones of said middle sprayers (44c, 44d, 44e) are large at positions close to said second sprayer (44b), intervals between adjacent ones of said middle sprayers (44c, 44d, 44e) are small at positions close
5 to said first sprayer (44a).

17. A coating system according to claim 11, wherein said controller (18) controls said sprayer mechanism (42) such that spray pressure of said liquid material from
10 said first sprayer (44a) is smaller than that of said second sprayer (44b).

18. A coating system according to claim 15, wherein spray pressure of said liquid material from said at
15 least one middle sprayer is larger than that of said first sprayer (44a) and smaller than that of said second sprayer (44b).

19. A coating system according to claim 15, wherein
20 said sprayer mechanism comprises multiple middle sprayers (44c, 44d, 44e) between said first sprayer (44a) and said second sprayer (44b), and

spray pressure of said liquid material from at least one of said middle sprayers (44c, 44d, 44e) is larger than
25 that of said first sprayer (44a) and smaller than that of said second sprayer (44b).

-33-

20. A coating system according to claim 11, wherein
said sprayer mechanism (42) sprays said liquid material
without accompanying air.